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PROCEEDINGS
OF THE
Royal Zoological
Society
OF
New South Wales

FOR THE YEAR
1941-42.



Price 1/-.

(Free to all Members and Associates.)

SEPTEMBER 25, 1942.

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ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES

(Established 1879.)

Registered under the Companies Act, 1899 (1917).

PATRONS:

His Excellency the Governor of New South Wales, The Lord Wakehurst,
K.C.M.G.

Sir Philip Woolcott Game, G.B.E., K.C.B., D.S.O.

COUNCIL, 1942-43.

President: Garnet Halloran, B.Sc., M.D., F.R.A.C.S., F.R.C.S. (Ed.).

Vice-Presidents: Gregory Macalister Mathews, C.B.E., Gilbert P. Whitley,
F.R.Z.S., Albert Littlejohn, and Noel L. Roberts.

Honorary Secretary: A. F. Basset Hull.

Honorary Treasurer: Phillip Shipway.

Honorary Editors: A. F. Basset Hull and Tom Iredale, F's.R.Z.S.

Honorary Librarian: Keith A. Hindwood, C.F.A.O.U.

Members: Ernest John Bryce, F.R.G.S., Neville W. Cayley, F.R.Z.S.,
Aubrey Halloran, B.A., LL.B., Charles F. Laseron, Albert Sherborne
Le Souef, C.M.Z.S., Edward John Lees Hallstrom, Theodore Cleve-
land Roughley, B.Sc., F.R.Z.S., Ellis Le Geyt Troughton, F.R.Z.S.,
and Emil Herman Zeck.

Assistant Honorary Secretary: Miss Betty French.

Honorary Auditor: Robert J. Stiffe, F.C.A. (Aust.).

OFFICERS OF SECTIONS:

Avicultural Section.

Chairman: A. H. Brain.

Hon. Secretary: P. F. Harvey.

Budgerigar Section.

Chairman: R. J. Murray.

Hon. Secretary: P. S. Hummerston.

Marine Zoological Section.

Chairman: Miss Maisie Golding.

Hon. Secretary: Harry B. Lee.

Ornithological Section.

Chairman: P. A. Gilbert.

Hon. Secretary: J. Allen Keast.

*Supplement to the Proceedings of the
Royal Zoological Society of New South Wales, 1941-42.*

IMPORTANT NOTICE

The Society has recently published a
comprehensive work on the

AUSTRALIAN INSECTS

By

KEITH C. McKEOWN, F.R.Z.S.

Assistant Entomologist, Australian Museum.

This contains an account of the various orders and genera, from the minute Springtails to the great Butterflies, Moths, and Beetles, couched in language easily understood by the amateur, but scientifically accurate in detail. The book contains over 400 illustrations, depicting most of the typical insect forms described in 300 pages of letterpress.

Price **7/6**. Postage: Australia, 5½d.; British Possessions, 7½d.; Foreign, 11½d.

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ROYAL ZOOLOGICAL SOCIETY OF NEW SOUTH WALES

The Sixty-second Annual General Meeting was held at Taronga Zoological Park, Mosman, on Saturday, 25th July, 1942, at 3 p.m. 116 members and visitors were present. The Honorary Secretary, Mr. Basset Hull, read the

SIXTY-SECOND ANNUAL REPORT.

Membership.—On the 30th June, 1942, the members on the register numbered 481, including associate benefactors, 3; life members, 29; honorary members, 8; ordinary members, 268; honorary associates, 3; life associates, 21; and associates, 149. Four ordinary members died during the year, and two associates converted to ordinary members. The net gain over last year on the above figures was 2; but, owing to war conditions, Council has temporarily suspended the operation of Article 9, and the names of a number of members whose subscriptions were in arrears were not removed from the register.

The Council.—Twelve meetings of the Council were held, the average attendance being 9.5. This, the lowest average on record, is accounted for by the absence on leave owing to war service of two members for the whole year, and two others for several months.

Deaths.—The following ordinary members died during the year: Messrs. Joseph S. Palmer, W. H. Cornford, W. L. Ross, and Bishop M. Tweedie

Extended Rooms.—Council had long contemplated adding to the accommodation offered to members, and an opportunity occurring by several adjoining rooms in Bull's Chambers becoming vacant, a suite of three rooms and a vestibule were taken on lease at an added rental of £150 per annum. One room was used to house the Society's library, which had previously been kept at Taronga Park; another room was used for the Honorary Secretary's office, and one room has been sub-let. The whole cost of transfer of the library and the additional furniture was borne by two members of Council, Messrs. Littlejohn and Bryce. The advantage of having the library easily accessible to members is considerable, and the return from sub-letting is already substantially reducing the liability for increased rental.

Library.—The removal to the city of that part of the Society's library, which had been housed at Taronga Park since 1916, has already proved of great service to members, who now have easy access to the books. A number of additional volumes have been presented by members, and further contributions will be welcome. The great work by Mr. Gregory M. Mathews on "The Birds of Australia" has been bound in 14 volumes. The last volume dealing with the "Birds of Lord Howe Island" was presented to the Society by the author.

Finances.—The war conditions affecting the Society's annual revenue from subscriptions, and the increased rental of the extended rooms have caused no very noticeable diminution of the Society's resources, and it is a matter for congratulation that in all its functions, the Society is in a position of financial stability.

Publications.—The "Proceedings" for 1940-41 were issued in August, and Part I of Volume 10 of "The Australian Zoologist" appeared in December. A new handbook of "Australian Insects", by Mr. Keith C. McKeown, of the Australian Museum, was set up during the year, and its early issue to the public is anticipated. Mr. Whitley's work on the Fishes, Part I, has met with a most encouraging reception, and the author has nearly completed the manuscript of Part II. Owing to shortage of manpower in our printer's establishment, it may be some time before this work is published.

Handbook Fund.—A progress payment on account of printing the

"Insects" handbook has further reduced this fund, but it still stands at a substantial figure, sufficient to meet all commitments and proposed publications for years to come.

Donations.—The Society records its appreciation of a donation to its funds of £150 by Mr. Albert Littlejohn. This amount has been invested in the Second Liberty Loan. Mr. Littlejohn also contributed £25 to the cost of transferring and housing the library, while Mr. E. J. Bryce contributed £10 to defray cost of additional furniture.

Sections.—The attendances at the meetings of four operating sections have been fairly satisfactory, in view of the "brownout" conditions. The Budgerigar Section held its annual Lawn Show in the grounds of the residence of Mr. J. Hubert Fairfax, Double Bay.

Presentation of Paintings.—A complete series of paintings by Mr. Neville W. Cayley, of the Australian Cockatoos and Parrots, was presented to the Society by Mr. E. J. L. Hallstrom. The paintings, 29 in all, were formally presented by the Honourable Clive R. Evatt, M.L.A., Minister for Education, on 29th October, 1941. Mr. Evatt was accompanied by Mrs. Evatt, and visitors included representatives of the Royal Australian Historical Society and the Australian Museum. These paintings are now displayed on the walls of the Society's lecture room.

Fur Farming Proposals.—A copy of the report by a Committee appointed by the Minister for Agriculture was considered by Council. This report was adverse to importing any carnivorous animals, other than the Silver Fox, which it considered might be experimentally bred under Government supervision. Council has made certain representations against this proposal, but the matter in the final event is one for determination by the Commonwealth Government, which has hitherto opposed the importation of any animal likely to become a pest or to introduce disease.

Fellows.—Council has conferred upon Mr. Keith Collingwood McKeown the title of Fellow, in recognition of his valuable services to Australian Zoology, consideration in this regard having been given to Mr. McKeown's works entitled, "Insect Wonders" and "Spider Wonders of Australia", as well as his completed work on "Australian Insects", shortly to be published by the Society.

Government Grant.—It is with great satisfaction that Council reports the restoration of the grant of £50 per annum, which was suspended for some years. Thanks for the restoration are due to the Hon. Clive R. Evatt, Minister for Education, and the Hon. Daniel Clyne, M.L.A., Chairman of Taronga Park Trust, who personally interested himself in the matter.

Taronga Park.—As a result of recent legislation, two of our members who were Trustees of the Park were retired, being over 70 years of age. Colonel Alfred Spain, and Mr. Aubrey Halloran, both life members and former presidents of the Society, worthily upheld our interests in the Park; the former was sole survivor of the seven members of our Council selected as the Trustees in whom the Park grounds were vested in 1912, and he held the office of Chairman from 1927 to the date of his retirement. Our present representatives on the Trust are Professor W. J. Dakin and Mr. E. J. L. Hallstrom, both of whom were nominated by the Society. Mr. R. A. Patten, the Superintendent of Taronga Park, is also a member. The Hon. Daniel Clyne, M.L.A., Speaker of the Legislative Assembly, is now Chairman, and the new Trustees are the Hon. R. R. Downing, and Mr. A. R. Greig, M.L.A., and Dr. R. J. Noble, Under-Secretary and Director, Department of Agriculture.

The Honorary Treasurer, Mr. Phillip Shipway, presented a provisional Balance Sheet, subject to audit at a later date, delay being caused by war conditions.

Council Members.—Five of the six retiring members of Council—Messrs. E. J. Bryce, Keith A. Hindwood, Tom Iredale, A. S. Le Souef, and G. P. Whitley—were re-elected. Dr. Marshall, the other retiring member, who is engaged on war work, did not wish to be re-elected, and Mr. E. L. Troughton, Mammalogist at the Australian Museum, was elected in his place.

Mr. D. P. Macdonald, M.L.A. for Mosman, moving the adoption of the Annual Report and provisional Balance Sheet, said the Society had given 63 years of valuable service to the community. In the library, now housed where it could be availed of by the general public, would be found a record of work done in spreading a knowledge of the zoology of Australia.

Recalling the knowledge he was given of this science from the school books of his young days, Mr. Macdonald said that any education in the zoology of their country given to the youth of Australia would be a valuable asset to them.

"I suggest that animal autobiographies be written by members of this Society and published in the School Magazine to form part of the curriculum. These would be of great interest to the children," he added.

Mr. Macdonald mentioned the absence from the meeting of Colonel Alfred Spain, formerly Chairman of the Taronga Park Trust, and said he had protested against the passing of the legislation which required veteran trustees to retire on reaching the age of 70. The value of Colonel Spain's services to Taronga Park was tremendous. At a time when there was a cry for younger men for the country's war activities, it was a pity that some of these stalwarts were not allowed to continue till after the war.

"Many of us," he said, "recall the old Moore Park Zoo, the beginning of this marvellous Park, with its world-wide reputation, which is unsurpassed in any part of the world, and is the envy of the whole Southern Hemisphere. In developing the area, the Society had done a great deal."

Referring to the welcome announcement that the Government grant had been restored, he expressed the hope that it might be made retrospective to cover the period it had remained in abeyance.

The motion was seconded by Dr. Garnet Halloran, who cordially supported Mr. Macdonald's plea for educational publications calculated to interest the younger people in the zoological attractions of their native land.

The motion was then carried.

The President then delivered his address on "The Charm of Australian Birds." (See p. 6.)

A vote of thanks to the President for his address was carried with acclamation, on the motion of Mr. Aubrey Halloran, and a vote of thanks to Mr. Macdonald for attending the meeting, and for his valuable support, was carried on the motion of Mr. Bryce.

OFFICERS FOR THE YEAR, 1942-43.

At a meeting of Council, held on 29th July, 1942, the following officers were elected:—

President: Dr. Garnet Halloran.

Vice-Presidents: Messrs. Gregory M. Mathews, Albert Littlejohn, Noel L. Roberts, and E. J. L. Hallstrom.

Honorary Secretary: A. F. Basset Hull.

Honorary Treasurer: Phillip Shipway.

Honorary Editors: A. F. Basset Hull and Tom Iredale.

Honorary Librarian: Keith A. Hindwood.

Honorary Assistant Secretary: Miss Betty French.

Honorary Auditor: R. J. Stiffe.

BALANCE SHEET AS AT 30th JUNE, 1942.

ACCUMULATED FUNDS.				ASSETS.					
	£	s.	d.	£	s.	d.	£	s.	d.
Balance at 30th June, 1941:—				Furniture and Equipment, Etc.—					
General Working Account	444	2	11	Office and Lecture Room Furniture and Equipment at valuation, plus additions . . .	275	4	3		
Handbook Fund Account	1,982	5	1	Library Books, etc., at valuation	500	0	0		
	2,426	8	0					775	4
Less Deficit —				Investments (at face value).—					3
Excess of Expenditure over Revenue for the year ended 30th June, 1942	203	1	1	Australian Commonwealth—					
	2,223	6	11	Inscribed Stock Treasury Bonds	810	0	0		
				Metropolitan Water, Sewerage and Drainage Board.—	350	0	0		
				Inscribed Stock Debentures ..	100	0	0		
								1,360	0
				(Including Arthur Littlejohn Endowment £250, Hume Barbour Endowment £106, and W. & E. Hall Endowment £175).					
				Cash at Bank and on Hand.—					
				Commonwealth Savings Bank—					
				General Account . . .	4	16	6		
				Publishing Account ..	83	1	0		
				Cash on Hand	5	2			
								88	2
									3

REVENUE ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1942.

[illegible]

**Auditor's Report to the Members of the Royal Zoological
Society of New South Wales.**

I hereby report that I have audited the books and accounts of the Royal Zoological Society of New South Wales for the year ended 30th June, 1942, and have obtained all the information and explanations I have required, and in my opinion, the above Balance Sheet exhibits a true and correct view of the state of the Society's affairs as at 30th June, 1942, according to the best of my information and the explanations given to me and as shown by the books of the Society.

I have examined the register of members and other records which the Society is required to keep by law or by its Articles, and am of opinion that such records have been properly kept.

(Sgd.) ROBT. J. STIFFE, F.C.A. (AUST.),

Hon. Auditor.

Sydney, 9th September, 1942.

GREGORY M. MATHEWS, President.

A. F. BASSET HULL, Vice-President.

PHILLIP SHIPWAY, Hon. Treasurer.

PRESIDENTIAL ADDRESS

THE CHARM OF AUSTRALIAN BIRDS.

By Gregory M. Mathews, C.B.E.

Our country has rightly been called the land of Bright Birds. Any walker in the bush is struck by the melody and sprightly actions of its denizens, a song on our right, closely followed or overlapped by others behind and before us. To get the full enjoyment of our feathered friends we must be about early; as the sun gets hotter the birds become silent, until late in the afternoon. Perhaps it was a late riser who said that our birds had no song. He could not have heard our Song Lark.

Take our Blue-wren, aptly called the Fairy. How perky it is, as it hops about on lawns, in park and garden, hopping up a bush it pours forth its song for all to appreciate. Whether versed or not in the names of the singers, the enjoyment is for all. These are really "Blue-birds". Recently there has been a controversy as to whether there are any "blue-birds" in England, owing to the song, "Blue birds" soon will fly over the white cliffs of Dover. The term is merely figurative.

While I was at Canberra, the Grey Thrush was singing in the Parliament grounds, and many people in the building were so struck with its marvellous performance that they left their rooms and went outside, the better to enjoy to the full this expert singer.

A nature walk is meaningless unless we can observe the beauties of nature; not only birds, but all the other things. Birds intrude themselves on us by being so mobile, ever on the move. Not only are they a delight to eye and ear, but are of the utmost utility to man; without them we could not easily fight the insects that are so destructive to the necessities of life on this planet.

Who amongst us does not enjoy the Kookaburra, called the Squatter's Clock, because he breaks the morn and ushers in the night, and about the middle of the day calls us to a meal with his hearty greeting. The Butcher Bird is of wicked habits, perhaps, but his melodious call re-echoes all over the place. The Flute-playing Magpie is always a joy, and he is heard best in the early morning.

The gayest of gay birds are included in our glorious array of Parrots. They lack the gaudiness that offends in the South American Macaws, for instance, though showing brilliancy of coloration unrivalled in beauty. These range from the huge sombre Cockatoos, commonly called Black, to the unspotted snow-white Sulphur Crest. Perhaps the most beautiful of all the Cockatoos is the Gang-gang, with its extraordinary cerise-coloured cowl on the head. The delicacy of this head ornamentation is only equalled by its dainty coloration, a shade rarely met with in bird life.

When the early voyagers went to the north-west they were struck by the huge flocks of White Cockatoos glittering in the sunlight, so that this feature impressed itself upon their minds, and they called the place "The Land of Parrots". They little knew how apt that name would become, as for variety, number and beauty of these birds, the name is still tenable.

Unfortunately some of the Parrots become an annoyance to the pastoralist, and the delightful beauty of the Galah is overlooked in the condemnation of its activities. Yet the earliest workers, seeing the good side, gave it the name of Eos, the Goddess of Dawn and Sunrise. It has selected a coloration of shadeful grey and rose-pink which is to-day very popular in the best circles as a combination of beauty, and has been favoured by royalty. Among the smaller Parrakeets a similar modesty in colour combination has made Bourke Parrakeet one of the most delightful in the group.

Everybody knows the Rosella, the trademark of jams and biscuits,

and its relations provide much food for research, in addition to their changing coloration.

Amongst our ducks we find the Tree-Duck, Pied-Goose and the Pink-eared Duck. It is noticeable that this latter peculiar colour occurs in three of our birds—this Duck, the Lilac-crowned Wren and some Bower-birds. The Freckled Duck is another of our outstanding birds, while the Musk Duck, with its extraordinary appendage on the lower mandible, is unique.

We also have the White-eyed Duck, a relative of the Northern Hemisphere bird, but it is not a diving duck here. Its habits have changed during its long sojourn in the south, but its appearance has not.

Of the Hawks we have the large Eagle Hawk—in fact, the largest of the family—and the Crested Hawk, the only one in Australia. There are Kites, Buzzards, Sea-Eagles and Falcons, our Peregrine being the bird that has been used in Falconry for thousands of years. We also have an all-white Hawk. The owls are not easily seen but are ever useful, as at night they take the vermin while we sleep.

Our birds songless? Far from it. In the early morning the bush is full of melody and music, probably more than in that of any other country, and apparently the libel arose through some late sleeper wandering about in the mid-day sun when the birds were at siesta. Everywhere throughout the world the mid-day bears silence; but then, of course, the ignorant would not have that knowledge. It is reported that an alien, boasting that we had no singer like the Skylark, suddenly heard one and exclaimed "Listen, you can't touch that". He was very annoyed when he was shown that the singer was the Australian Song Lark. But falsity dies hard, and we must keep emphasizing that our birds absolutely excel.

Again, Chisholm has shown that as whisper songsters, we have a series unique, a multitude of songsters who sing "sweet and low" as if practising, but producing delightful music.

We have not to go far afield to realise the delights of our birds, as one has come into our gardens and parks and carved a niche as famous as that of the Robin Redbreast. It must be remembered that that bird has built up its reputation through a thousand years of intercourse with man, but our little Willie Wagtail has only 150 years, and is even more endearing in its ways.

Another marvel is the Lyre-bird, the world's best mimic, and one of our birds whose notes have been heard over the air on the other side of the world. I sat in my library at Winchester (England) and heard this wonderful melody. The bird also is unique in that its place in systematic lists has varied. At one time placed with the Birds of Paradise on account of its tail; at another with the megapodes on account of clearing a "mound" on which to display; or with our barn-door fowls on account of its scratching with its feet, as do the humble hens.

The mound-raising species build a "hot-bed" in which to hatch their eggs. This trait was disbelieved for many years after it was first stated. This was understandable, as all eggs which have been observed are "turned" during the incubation period. One species is distributed in the islands to the north of Australia, but the other two on our list are confined to our continent. This desire to build these mounds remains even when the birds are taken to Europe, and our Brush Turkeys yearly made their hot-beds at the London Zoo and Woburn Park.

Then those interesting travellers which go to Siberia to reproduce their kind; what a journey to make, when apparently they could hatch their eggs in this country! The trip of over 5,000 miles each way must be nature's way of eradicating the unfit. When the birds return from their breeding grounds the different species mix together in large flocks. As the urge to go north comes, each species keeps to itself. The birds that are to make the long journey get fat and put on their breeding plumage, the better to withstand the hardships ahead. Those, for reasons not fully understood, which are not going, do not acquire the breeding plumage, nor do they get noticeably fat.

The birds found in the forest are dark plumaged, as a rule; those found in the arid or semi-dry country are of light colour and seem thus able to be protected against their foes. In the jungle they can fly into trees or under bushes for safety; in the open this is not possible.

Which of us, when crossing the harbour, has not been struck by the flight of the sea-birds crossing and re-crossing our bows? With what grace do they seem to glide through the air! Further out on the open sea is the Albatross, **par excellence**, the perfect glider; after having risen from the surface of the water and flapped into position, the wings are held apparently motionless as the bird passes our ship, goes ahead, turns and glides past us to the end almost of our wake, turns and again overtakes us. Are the wings motionless? If we watch with glasses we notice the wings, with small twitches and turns, taking advantage of the air currents. The Wedge-tailed dark Albatross is the best performer. I have watched it for many hours following the vessel, but never have seen a flap of the wing.

Then we have the beautifully dressed Gulls, and these are the creatures that keep the beaches clean of all offal. They are web-footed, but they cannot dive for their food, so are compelled to eat things found on the surface. They are world-wide in their distribution, as are the graceful Terns. These fly the oceans and, seeing a fish below, drop suddenly on their prey, in the same manner as the large Gannet, but emerge more rapidly. One of the very interesting sights near a home of the Gannet is to see them constantly diving on to their prey and sending up a splash of water. Just before they reach the water they close their wings, the better able to dive without mishap. Strange as it may seem there is also a fishing Eagle, and he is an expert in his way, as nature has given him a reversible toe, so that he can hold the slippery fish.

The fisher with his own bag, in which to hold his catch, is the strange-looking Pelican; you all know the rhyme about him. The bird, of course, is never found in the "wilderness", if by that we mean desert.

The earlier explorers found with delight a Black Swan, a bird that was considered not to exist, and we have the Swan River in Western Australia, named to perpetuate this rare find, although now the bird itself is common in so many parts of Australia, has established itself in New Zealand, and reproduces its kind in England each year.

A French navigator brought to Europe a painting of our Brown Quail, the bird with the feathers marked with the Greek "epsilon". Dampier was the first navigator to include a figure of a purely Australian bird, the Avocet. To this man is attributed the vernacular name, Petrel or Petteril; he said the Storm Petrels appeared to walk on the surface of the water in the way St. Peter did on the Lake of Gallilee.

Again, our Robins. Gaining this name through the Redbreast of England and the poor memory of the exile, the name is now perpetuated for a group of lovely birds, the majority altogether overshadowing in brilliancy the somewhat modest and dull-coloured northern Robin Redbreast, popular because there is so little red colouring in British birds. If it be seen at all it is immediately picked on as the distinguishing character. Hence we get Redstart, Redwing, Rednecked Grebe, etc.

Green is the prevailing colour amongst bush birds and may cause a dull appearance, but in fact the Honey-eaters are as attractive as most birds, as in nearly every instance there is an ornament such as a yellow or white ear-stripe, or wing bar, black helmet, etc. The smaller, brightly-coloured Honey-eaters, known as Australian-adjective Honey-eater, now known by the more polite name of Scarlet, and the Spine-bill can hold their own in any company.

Then our unique Emu, always used on an heraldic shield and in advertisement, brands the carrier as being the best in the world. The shy Cassowary, only to be found in dense jungle. And so we could go on and on.

I can imagine some of my listeners recalling the bird they like best remonstrating that I have not mentioned it, and I would ask excuse from the fact that there are 700 different kinds of birds, and every one is charming, and I cannot read out the whole of our list.

With all our own opulent resources in bird life, it is a great pity to see so many foreign birds taking the place of the native ones, and doing harm to man's work: the Bul-bul; Starling; Black-bird; Indian Minah; Sparrow, and others. Man is always bitten by his own tooth, and here is still another case. Man's thoughtlessness is always his undoing.

REPORTS OF SECTIONS.

AVICULTURAL SECTION.

Annual Report.

In presenting the annual report for the Avicultural Section for the year ending 30th June, 1942, I have pleasure in stating that, bearing in mind the circumstances of war, the Section has experienced a most interesting and educational year.

The full schedule of meetings was held, and many lecturers contributed to make the evenings very entertaining.

The Section lost a great number of its members who had joined the colours, and many more who were employed for long hours in the various war industries.

Despite these difficulties, those members able to do so attended regularly, and the meetings were maintained at a standard comparable with any previous year.

The following is a list of the lecturers, and their subjects, during the year:—

Mr. Melbourne Ward.—“Marine Life of New South Wales.”

Mr. A. N. Colefax.—“The Importance of Going Fishing.”

Mr. A. S. Le Souef.—“Habits of Birds in Relation to the Rest of the Animal Kingdom.”

Messrs. Murray & Hargreaves.—“Visits to Aviaries.”

Mr. R. A. Patten.—“Flora and Fauna of Taronga Park.”

Mr. Tom Iredale.—“Lord Howe Island.”

Mr. Roy P. Cooper.—“Sea Birds and Their Nests.”

Mr. K. A. Hindwood.—“Birds of Sydney.”

Mr. C. P. Conigrave.—“Adventure in New Guinea.”

Mr. N. Chaffer.—“The Nests of Birds.”

Mr. C. Camp.—“Natives of New Guinea and Collecting Birds of Paradise.”

Mr. Roy P. Cooper.—“Rambles in Birdland.”

As will be seen the subjects dealt with were many and varied, but all were of great interest to members.

Despite the drought conditions that prevailed throughout the greater part of the year, members reported many successful breedings and also some unusual hybrids.

In conclusion, the officers would like to thank all members for their enthusiasm and attendance during the year, and trust that before another year draws to a close that victory will be granted to us, and that we will be free to carry on our business and our pleasures in a true democratic country.

ROY P. COOPER, Hon. Secretary.

BUDGERIGAR SECTION.

Annual Report.

The activities of the past year showed that, in spite of the adverse conditions, interest and enthusiasm was well maintained by those members who are still available. Attendances at the monthly meetings were on a reduced scale, but sufficient to enable the organisation to carry on a policy of progressiveness.

The Annual Lawn Show was held on March 7th at the residence of Mr. and Mrs. Hubert Fairfax, and was a distinct success. Entries totalled 179, being only 20 less than the previous year, which, under the present conditions of transport, was highly satisfactory.

The annual competition for the “Sydney Mail” Trophy was keenly contested and was won by Mr. J. W. Palmer. For the purposes of

raising funds for the Red Cross, two pair of birds, kindly donated by Mr. R. J. Murray and Mr. H. Gray were disposed of, and Red Cross seals were also sold—the effort bringing in a total of £7/7/6.

The Section fully appreciates the practical support so kindly given in many ways by Mr. and Mrs. Fairfax to the Show, which greatly contributed to the success achieved. Thanks are also due to the many members whose efforts and time, in addition to financial assistance, made it possible to hold the Show.

The monthly Table Shows were not so well patronised as in the past year, and for the forthcoming year Messrs. H. Yardley, R. J. Murray, P. F. Harvey, and P. S. Hummerston kindly offered to donate trophies to the value of £2/2/- for Table Show competition, for which the Section offers its thanks. A trophy will also be provided for the most successful competitor in the Amateur Judging Competition.

The Table Shows and the Lawn Show demonstrated that, although the entries were less in number, the average quality of the birds was higher than ever before, thereby justifying the continuance of our efforts in this direction.

The competition of points score for the year was won by Mr. S. Maher, second Mrs. R. B. Browne, and third Mr. H. Yardley.

The Amateur Judging Competition was won by Mr. S. Maher, second Mrs. R. B. Browne, and third Mr. C. Parkinson.

Mr. J. W. Palmer is to be complimented on his activities as Table Show Secretary, and for his detailed report thereon.

The Executive of the Section thank all members who were able to continue their activities for their efforts, and trust that all so fortunately placed will continue in a similar manner in order to maintain our organisation for future operations in normal times.

P. S. HUMMERSTON, Hon. Secretary.

MARINE ZOOLOGICAL SECTION.

Annual Report.

The committee of the Marine Section has much pleasure in presenting its annual report for 1941-42. Attendance has been smaller than in previous years, averaging about twelve persons.

The February meeting was not held because of the short notice of a complete blackout condition; also, owing to the irregular routine of some members and lecturers, it was decided in March to abandon the April and May meetings this year.

Through the resignation of the chairman, Mr. John Laseron, who joined the forces and was transferred to Darwin, Miss M. Golding was elected to that position in August.

Only one field excursion was held this year. This was to Bottle and Glass Rocks on December 20th.

Exhibits of new specimens continued with the same enthusiasm as in the past, while a number of interesting and illustrated lectures have been given as under:—

1941.—July 7: "The Invertebrates of Mt. Irvine," by Mr. Melbourne Ward. August 4: "Poisonous Animals," by Mr. Colefax. September 1: "Twelve Months on a Volcanic Island," by Mr. Tom Iredale. October 7: "Travels Abroad," by Mr. G. P. Whitley. November 3: "Marine Boring Organisms," by Mr. R. A. Johnson. December 1: "Sea Bird Migration," by Mr. Tom Iredale.

1942.—March 2: "The Care of Animals During War Time," by Miss Joyce Allen.

In concluding this report, the officers of the Section wish to thank all members and friends who assisted with lectures and brought exhibits.

HARRY B. LEE, Hon. Secretary.

MAISIE GOLDING, Chairman.

ORNITHOLOGICAL SECTION.

Annual Report.

The Section continued to hold monthly meetings during the year 1941-42, and lectures and discussions were arranged. In spite of more members enlisting in the fighting services, the attendances showed a partial improvement from the previous year, an average of 22 being maintained. Five field days were held with an average attendance of 12, as follows:—July 13, 1941, to Kurnell; leader, Mr. D. Leithhead. September 7, 1941, Marley; Mr. Boucher. September 29, 1941, Marley Creek; Mr. J. A. Keast. November 16, 1941, Middle Harbour; Mr. G. R. Gannon. June 28, 1942, Waterfall; Mr. J. A. Keast.

Field, photographic and scientific work was continued by members, and articles published or awaiting publication in "The Emu" and other journals show that New South Wales ornithologists have not lagged behind the other States.

The following lectures were delivered during the year, war conditions necessitating some alterations to the syllabus early in 1942:—

1941.—July 18: "Some Remarkable Birds of the World," by A. S. Le Souef. August 15: "Wild Nature in Poland," L. de Noskowski. September 19: "The Growth of the New South Wales Gould League of Bird Lovers," by D. Leithhead. October 17: "The Food of Birds," by K. C. McKeown. November 21: "The Physiological Aspects of Birds," by A. J. Marshall. December 19: "About Birds," by G. M. Mathews.

1942.—January 16: "Territory in Birds," by T. Iredale. February 20: Films screened by J. Sherlock. March 20: "Parrot-like Birds," by N. W. Cayley. April 17: Slides shown by N. Chaffer and K. A. Hindwood. May 15: "Birds of the Burragorang Valley," by J. A. Keast, and bird slides projected by K. A. Hindwood. June 19: Annual Meeting. General discussion.

Another feature introduced was the reading of letters from fellow members in the fighting forces. Members are requested to bring along any letters received and inform the meeting of the doings and whereabouts of ornithologists in the country's service. Over the last few months letters were read from J. Waterhouse, J. Flynn, M. Sharland, H. Paul, J. Berney, D. Leithhead, C. Kennedy, and R. Virtue.

At the annual meeting, the following officers were elected:

Chairman: Mr. K. A. Hindwood.

Secretary: J. A. Keast (re-elected).

Committee: Miss E. Butters (re-elected), Mr. G. R. Gannon, and Mr. A. R. McGill.

P. A. GILBERT, Chairman.

J. ALLEN KEAST, Hon. Secretary.

SYLLABUS OF SECTIONAL MEETINGS, 1942-43.

Note: When the scheduled date for a meeting falls on a Public Holiday, the meeting is held on the next convenient date.

AVICULTURAL SECTION (Second Monday in the Month).

1942—

- August 10.—“A Naturalist in New Guinea.”—By Melbourne Ward.
September 14.—“Unusual Points of Interest in Bird Life.”—By A. S. Le Souef.
October 12.—“Bee Culture.”—By W. Goodacre.
November 9.—New Films of Taronga.—By R. A. Patten.
December 14.—“Breeding Birds.”—By R. J. Murray.

1943—

- January 11.—Natural Colour Films of Birds.—By N. Chaffer.
February 8.—“Preparatory Work at the Museum.”—By J. Kingsley.
March 8.—“About Birds.”—By Tom Iredale.
April 12.—“The Charm of Birds.”—By Roy P. Cooper.
May 10.—“Bird Study.”—By Frank Buckle.
June 14.—“Bushland Songsters.”—By K. A. Hindwood.

BUDGERIGAR SECTION (Third Tuesday in the Month).

1942—

- July 21.—Table Show. Type only. Any variety.
August 18.—Table Show. Green. Any variety. A.O.V.
September 15.—Table Show. Blue. Any variety. A.O.V.
October 20.—Table Show. Grey-wing Blue. Any variety. Normal and 50% body colour.
November 17.—Table Show. Young birds. Unbroken cap. Rung or unrung. A.O.V.
December 15.—Members' Night.

1943—

- January 19.—Table Show. Clear-wings. Any variety. A.O.V.
February 16.—Table Show. Young birds. Ringed 1942.
March 16.—Table Show. Self-coloured varieties, including Lutino and Albino. A.O.V.
April 20.—Table Show. Cinnamon-wing varieties. A.O.V.
May 18.—Table Show. Any variety not provided for in the Standard of Perfection. A.O.V.
June 15.—Annual Meeting. Table Show. Grey-wing Green. Any variety. Normal or 50% body colour. A.O.V.

MARINE ZOOLOGICAL SECTION.

Owing to the brown-out this Section's programme for the year is indefinite. The next meeting will be held on Monday, September 7, when Mr. Melbourne Ward will lecture on “The Place of Animals in Human Thought,” Part II. The date of the following meeting will be decided at the September meeting.

ORNITHOLOGICAL SECTION (Third Friday in the Month).

1942—

- July 17.—Projection of a Series of Lyre Bird slides from Melbourne.
August 21.—“Sea Birds of South Australia.”—By Dr. D. L. Serventy.
September 18.—“Birds of New Zealand.”—By A. J. Tubb.
November 20.—Discussion on Bird Migration.—By Tom Iredale, Dr. D. L. Serventy, and K. A. Hindwood.
December 18.—“Some Petrels of the Southern Hemisphere.”—By Gregory M. Mathews.

1943—

- January 15.—Cine Films.—Screened by J. A. Sherlock.
February 19.—“Bower Birds.”—By E. Nubling.
March 19.—“Australian Owls.”—By Neville W. Cayley.
April 16.—“In Quest of Birds.”—By Roy P. Cooper.
May 21.—Bird Films.—Screened by N. Chaffer.
June 18.—Annual Meeting. Chairman's Address.

THE BIRDS OF LONG REEF, NEW SOUTH WALES.

By K. A. Hindwood, F.R.Z.S., C.F.A.O.U.

Long Reef, which lies between Deewhy Beach and Collaroy, some twelve miles north of Sydney, is better known to students of marine life and geology than to bird lovers. It is an interesting spot and has long been a collecting ground for naturalists. However, the bird life of the area has received but passing attention.

A general description of the natural history of the area is to be found in **Bush Days** (1911), a delightful little book of essays on nature, by Amy E. Mack. Herein it is not difficult to recognise in "The Reef" a pleasant account of Long Reef. In those far off days, some thirty years ago, it was necessary to walk over hills and along beaches to Long Reef. Nowadays roads pass nearby, bringing picnickers, fishermen and nature-lovers in "great plenty". Withal, The Reef itself has changed but little, and were the spirits of departed naturalists inclined to view this scene of their happy days on earth, they would have no just cause to complain. The presence of a golf course on the western slopes of the headland might cause some ghostly concern. Years ago this was a place of swampland, coastal shrubs and white honeysuckle trees, and as lonely a spot as one could wish.

For the purpose of these bird notes, Long Reef embraces the headland—roughly triangular in plan—which slopes gently on its western side, or base (most of which is a golf course), and forms a high ridge towards its apex. The northern side of the ridge falls sharply to the sea, while the southern side is, for the most part, a steep rock face. The headland is almost entirely surrounded by a narrow sandy beach, with a small sand-spit at the eastern point. This sand-spit is constantly changing, according to the state of the sea and the direction of the wind. A large rock-flat is situated on the northern side of The Reef, and a more extensive one on the eastern and southern parts. These platforms, several acres in extent, are exposed at low tide and are largely covered with a sea-weed, **Hormosira Banksii**. The innumerable small crustaceans and other marine life living amongst this growth provide a plentiful and inexhaustible supply of food for the birds, particularly the waders. Many small pools, left by the receding tide, harbour small fish and crabs much sought after by Reef Herons and, occasionally, Cormorants.

At the eastern extremity of The Reef is an area of broken rock never covered by the tide, but often swept by spray in rough weather. This spot is a favourite resting-place of the birds. Scattered over much of the eastern and southern platforms are many large boulders, most of which originally formed part of the headland. In the course of time the waves have moved these fallen boulders over the rock-flats. The headland is mostly overgrown with grass and, in places, by small shrubs. A solitary white honeysuckle, or coast banksia (**Banksia integrifolia**), bent by the wind, is growing where the ridge commences, while several dead and dying trees of the same kind are on the northern side between the golf house and the ridge.

The above general description is the locality referred to in the following notes as "The Reef" and covers an area approximately one mile by half a mile; to this must be added that portion of the sea adjacent to The Reef—within about a mile radius—where observations have been made on birds seen out at sea.

The area is primarily a feeding ground and a resting-place for swamp, shore, and sea birds. This is apparent when it is realised that about 75% of the species recorded belong to these groups. The remainder are land birds, only one of which, the Ground-Lark, is always present, the rest being occasional visitors or rare stragglers.

I know of but one species having nested at Long Reef: this was

the Red-capped Dotterel, which used to breed on a small area of shell-strewn sand near the Spit. During recent years the birds have not bred there. The spot is now over-grown with marram grass and rats are present; also, the locality generally has become quite popular with picnickers and fishermen. These factors seem to have caused



Gulls, Terns and Cormorants on the outer rocks, Long Reef.

the few birds that nested there to seek breeding places elsewhere. The Ground-Lark probably nests on the grassy slopes, as it is present throughout the year.

An analysis of the different kinds of birds recorded may be of interest: Penguins, 1; Petrels (Mutton Birds) and Albatrosses, 6; Cormorants and Gannets, 4; Terns, Gulls and Skuas, 7; Waders (which group includes Oyster-catchers, Plovers, Dotterels, Stints, Sandpipers, etc.), 10; Herons, Swans and Ducks, 5; land birds, 10; a total of forty-three species. A few of the Albatrosses offshore, and one or two waders, could not be identified with certainty. Observations, if continued over a number of years, would, no doubt, increase the number to fifty or more species.

When The Reef is covered during the early hours of daylight some of the waders would be away feeding on nearby marshes and lagoons. Soon after the turn of the tide they would come in and wait for the rock-flats to be uncovered. On March 1, 1942, at 10 a.m., not long after the tide had commenced to fall, I waded across to the outer rocks and saw only one Sharp-tailed Sandpiper and a few Golden Plovers. Shortly afterwards, two wisps of waders arrived, and a careful count of these birds revealed that eighty-four Sharp-tailed Sandpipers and some fifty Golden Plovers were then present. Birds like the Red-capped Dotterels, Oyster-catchers, Turnstones, Reef Herons, Tattlers, etc., were inclined to remain on The Reef when the tide was high, as were the Plovers and Sandpipers if they had fed during the early morning. During the week days, when there was little or no disturbance, the birds were fond of resting on the sand-spit.

Had the nearby coastal lagoons—Deewhy, Curl-curl, and Narrabeen—been open to the sea during the main period of these observations, there would have been, I think, a greater variation in the numbers of waders present on The Reef. When these lagoons are open to the sea there is a considerable drop in the water level, thus exposing extensive mud-flats, which are favourite feeding-grounds of many waders. These birds would then have had a greater inducement to feed away from The Reef, especially at high tide.

At the approach of autumn it was noticed that the northern migrants became much more alert and more inclined to flock when alarmed. A mixed party of these birds in flight is a fine sight. The entire flock seems to move as one bird, wheeling, banking, rising and falling, at times with their pale underparts gleaming in the light, the next moment almost disappearing as their dark backs turn towards the observer. There is rhythm in their movements and great power and speed in their pointed wings. When at rest on the sand-spit, among the stones and debris, or on the rock-flats, their general greyish-brown colouring harmonises wonderfully with their surroundings. Often they are unnoticed until they commence to move.

In the notes on the various migrant birds seen on The Reef I have given the earliest and the latest dates the birds were seen. However, it should be explained that the first arrivals or the last birds to be noted are not necessarily those that remain with us throughout their stay. An area like Long Reef, with hundreds of miles of coastline, both north and south of it, affords a feeding and resting-place for birds on migration. Unless the earliest arrivals could be marked in some way, or had some individual peculiarities, it is impossible to know whether they remain or pass on to other localities.

When the migration of a particular species was in progress, and this might take place over several weeks, it was noticed that there was less stability in the number of individuals present than in the non-migratory period. This indicates that passage migrants often use The Reef for a few hours or days and then pass on their way.

The following notes on the birds are based on seventy-five visits from October, 1932, to May, 1942. Fifty-two of these trips were made between March, 1941, and February, 1942, at intervals of from five to eight days. One of the objects of visiting The Reef at least once a week for twelve months was to find out just how the bird population of a restricted area changed throughout the year. Here, where conditions changed but slightly, except for seasonal variations in temperature, was an ideal spot for this purpose. Floods there are none, and fires are almost unknown, though once a careless fisherman, when boiling his billy, set alight to the grassy headland. The only effect this had on the bird life was to drive a few Ground-Larks back on to the golf links. Human interference is negligible. Boys occasionally soo their dogs on to the Gulls and Terns, or throw stones at the birds which, otherwise, are mostly left to themselves, especially during week days. In consequence, they are fairly tame. Stormy weather, unless of long duration, does not drive birds from The Reef. The absence of cover on the rock-flats, where most of the waders fed when the tide was out, made observation much easier. The numerous water-washed boulders on the eastern and southern flats become exposed as the tide falls, and are then much used by the Gulls, Terns and Cormorants as resting-places, more so if these birds are disturbed from the outer rocks.

Altogether forty-three species are recorded; of this total fifteen kinds fed or rested on The Reef regularly, according to the seasons; seven were occasional visitors, five were seen two or three times during the year, while ten were listed once only. Sea-birds which did not alight on The Reef (Petrels and Albatrosses) numbered six.

Observations ceased, in so far as these notes are concerned, on May 3, 1942. The number of species seen on any one visit varied between ten and eighteen. The number of birds present was never less than one-hundred or more than six-hundred.

The classification used is based on **A List of the Birds of Australasia**, 1931, by Gregory M. Mathews.



Long Reef flats and headland from the outer rocks at low tide.

Little Penguin. *Eudyptula minor*.*

The Little Penguin was heard calling, a yapping note, on a few occasions, but was recorded twice only on The Reef. A single bird was seen sheltering under a rock shelf on March 3, 1942, and a dead bird was collected near the sand-spit on March 22. The weight of this bird, a male, was 1 lb. 6 oz.

MUTTON-BIRDS (Petrels).

The identification of Mutton-birds, or Petrels, from a fixed point on land is a very difficult matter, especially with the dark-plumaged species, several of which are much alike. A second group, dark above and white below, is discussed under the heading of the Fluttering Petrel. From the evidence of dead birds cast up on The Reef, or nearby beaches, the majority of the dark birds seen were probably Short-tailed Petrels, and, to a lesser extent, Wedge-tailed Petrels. In some years Sooty Petrels, which breed in New Zealand, are present in numbers along the New South Wales coast, but none was recorded from The Reef area during the main period of these observations. It was noticed that the birds came much closer to land when strong winds were blowing, not necessarily from any particular direction. Large congregations of dark birds were offshore early in January, 1941, with a reduction in numbers towards the end of that month. These could hardly have all been Wedge-tailed Petrels from the small breeding colony on Lion Island, Broken Bay. Presumably many were non-breeding Short-tailed Petrels. January is the height of the breeding season for this species, which nests in millions on the Bass Strait Islands. Dark birds were rarely seen in February, and scarcely at all during March. None was recorded during April, May and June. These are the months when the Bass Strait birds migrate to the warmer parts of the western and northern Pacific, and when one would expect to see them off our coast. Possibly this northern migration takes place at a considerable distance from land and may be correlated with the movement of surface fish and plankton on which the birds feed.

Dark Mutton-birds appeared again about the middle of July with a very large increase throughout the whole of September and October. On September 7, 1941, in particular, thousands upon thousands of birds were observed. As far as one could see with field glasses Mutton-birds were wheeling, gliding, feeding and resting on the ocean. If a school of fish was present the birds would settle on the water and feed voraciously, often with most of their bodies submerged. Those at the rear would rise again and settle at the head of the flock, like Starlings feeding over grassland. Gulls and Terns were also attracted to this bounteous feast..

The large concentration of birds during September and October probably represented, for the most part, the southern migration of Short-tailed Petrels passing to their breeding grounds in Bass Strait. They usually arrive at their nesting-places from about the middle of September, but do not commence to lay until the end of November. Comparatively few birds were seen throughout November and December.

Fluttering Petrel. *Reinholdia gavia*.

White-breasted Petrels, presumably referable to this species, were seen at sea in considerable numbers between early July and mid-September. They were still about, but not so common, until the third week in November. None was seen at sea after this date, though a few dead birds were found on The Reef. One on November 27, 1941; one on December 26; two on February 7, 1942, and one, much decomposed, on March 3. There is a specimen in the Australian Museum collection taken at Long Reef in January, 1934 (No. 0.33572 ♂).

*There are two records of this bird nesting in the immediate vicinity of The Reef—one under a fisherman's hut, and the other under a cottage near the beach.—Editor.



Crested Terns, Silver Gulls and White-fronted Terns facing the wind.

The flight of this species is distinctive—rapid wing beats, followed by gliding, and close to the surface of the ocean. It was difficult to see them from The Reef in a morning light, as their dark backs merged with the sea and their white underparts were not apparent. In the afternoons, with the sun behind the observer, the birds were much easier to see, especially when they turned in flight. They moved about in parties of up to one-hundred or more in rather close formation of line, and often travelled considerable distances before changing direction. On July 20, 1941, many were resting on the sea about a quarter of a mile offshore and were apparently feeding on small school fish. Dark Mutton-birds, Silver Gulls, Crested and White-fronted Terns were also present.

No breeding grounds have been discovered in eastern Australia. It is highly probable that the birds appearing off our coast are migrants from New Zealand, where the species breeds in large numbers, the principal egg-laying months being October and November.

Wedge-tailed Petrel. *Thyelodroma pacifica*.

This is the species that breeds on Lion Island, the Five Islands, off Port Kembla, and elsewhere along the New South Wales coast. No definite migration has been recorded. Two dead birds were found on the sand-spit at The Reef on November 9, 1941. No doubt a proportion of the dark Mutton-birds seen at sea belonged to this species.

Short-tailed Petrel. *Neonectris tenuirostris*.

The Short-tailed Petrel was frequently found washed up dead on the beaches and sand-spit of The Reef. The records for recently dead birds are: October 18, 1941, eight; November 2, one; November 9, twelve; November 30, four; December 14, five; December 21, twelve; December 27, one; February 7, 1942, one; February 22, one. The October, November and December birds probably represented laggards from the main stream of migration, possibly old or diseased birds that had "fallen by the wayside". No stormy or boisterous weather was recorded during this period, though strong winds were prevalent.

Giant Petrel. *Macronectes giganteus*.

A storm-washed bird was collected at Long Reef in September, 1933, by Mr. R. Blacket (specimen No. 0.33,448, Australian Museum). This species was not observed during the period of my observations. Odd birds may be expected to occur offshore, mainly during the autumn and winter months.

Wandering Albatross. *Diomedea exulans*.

Albatrosses occurred at sea off Long Reef from towards the end of May to mid-September. Unless the birds came fairly close in, which they usually did when strong winds were blowing, it was difficult to determine the species. The Wandering Albatross was recognised several times. Many of the birds were in immature plumage, having a large part of the upper wings dark with a white patch near the centre of each wing.

Black-browed Albatross. *Thalassarche melanophris*.

Recorded on a number of occasions and occasionally seen resting on the water. In a good afternoon light their orange-coloured bills could be plainly seen with the aid of field glasses. Immature birds have dark bills. The Black-browed Albatross has a more compact outline than the Wandering Albatross, and is, of course, a much smaller bird.

Several other species of Albatrosses are likely to occur offshore, but only the Wandering and the Black-browed were recognised with certainty. A Shy Albatross (*Diomedella cauta*) was collected on Collaroy Beach, near Long Reef, on September 9, 1941 (specimen No. 0.37,542 ♂, Australian Museum).

Marsh Tern. *Chlidonias hybrida*.

The Whiskered or Marsh Tern generally appears in the Sydney area during the summer months only, apparently as a wanderer or migrant from other parts of Australia. It is not known to breed anywhere near Sydney. It frequents, for the most part, lagoons and marshy localities. A single bird was seen at Long Reef on September 28, 1941, and on November 30; four were resting on the rock-flats; all were in summer or breeding plumage.

Crested Tern. *Thalasseus bergii*.

Excepting on one occasion, July 6, 1941, Crested Terns were present on The Reef throughout the year. Generally the number of birds varied from a few to about eighty, with three large influxes: (1) the latter half of August, 100-200; (2) most of October, 100-300, and (3) during the last week in November, 300 actual count, November 23, 1941. The August increase in numbers may have been caused by the flocking



White-fronted Terns and one Crested Tern.

of the birds prior to moving south to their breeding grounds on the Five Islands. The October and November influxes at the height of the breeding season, when one would expect the majority of birds to be absent from The Reef, are difficult to explain.

The birds used The Reef as a resting-place and fished offshore or along the coast. They are fond of bathing in the shallow water as the tide is falling. The first young bird of the season, accompanied by its parents, was recorded on December 27, 1941. The following week several were present and the parents of one bird attacked me.

Many of the Crested Terns that remained during the breeding season were apparently birds born the previous summer. They much resembled fully adult birds in winter plumage, except that their bills were greenish-yellow, not bright yellow as in adults. This suggests that some birds, at least, do not breed until the second year after they

are born. The clear-cut glossy black crown of the adults is lost by moult during March and April, and is replaced by mottled feathers. The elongated, black, and somewhat pointed nape feathers, forming the crest which is generally raised when the birds are excited or alarmed, also becomes much reduced. During August the breeding plumage is again assumed, and towards the end of that month fully plumaged birds are to be seen. Young birds, until they are a few months old, have a speckled plumage. I was surprised to see a very mottled bird on October 12, 1941, as it seemed too early for young of the season to be about.

White-fronted Tern. *Sterna striata*.

The White-fronted Tern resembles the Crested Tern but is smaller. It is lighter grey on the back, always has a black bill, which is yellowish in the Crested Tern, and has reddish-brown legs. In flight it appears a much lighter coloured bird than its large relative, and is certainly more graceful and agile on the wing.

Actually very little has been written about the habits of this bird in Australia; even the recorded nesting of the species in Australian waters needs confirmation, despite the fact that every standard work on our birds states that the White-fronted Tern nests on some of the islands of Bass Strait and south-east Tasmania. These statements seem to have been based largely on the recorded taking of eggs on the Actaeon Islands, Tasmania, in 1888, and in 1897†. Apart from these eggs, now in the Australian Museum, Sydney, all specimens in collections are from New Zealand, where the species is very common and widely distributed. For more than forty years naturalists have visited possible nesting places in Bass Strait and eastern Tasmania, but have not been successful in locating breeding birds. A more intensive search in coastal Tasmania, together with enquiries through Tasmanian newspapers during the past year, has, so far, proved fruitless.

On the evidence available, it seems that the birds appearing in Tasmania and along the south-east coast of Australia, and as far west as South Australia, are migrants from New Zealand. When we consider the large number of birds inhabiting New Zealand, it is apparent that only a small proportion cross the Tasman Sea to eastern Australia. In time to come the proof, or otherwise, of this supposition may be proved by bird banding.

In 1941, the first White-fronted Tern seen on The Reef was noted on May 25. One, two, or three birds were present on each visit until mid-July, when a large immigration took place. On July 20, some sixty birds were offshore, feeding on surface fish, with Crested Terns, Gulls and Mutton-birds. During the next four months they were noticed every week either resting on the rocks or the sand-spit. Generally from thirty to fifty birds were present, not taking into account any that happened to be fishing offshore. The greatest number seen was approximately one hundred and sixty, on October 18. One hundred and twenty were counted on November 2, and ninety-seven on October 5. All had departed by the fourth week in November.

Dates for stragglers—that is, odd birds which have not joined the main exodus—are December 15, 1940, one adult in "winter"? plumage; January 10, 1942, a single bird in summer or breeding plumage; January 18, 1942, a bird in similar plumage to the one seen on January 10. A single bird, an adult in winter plumage, was recorded on May 3, 1942, three weeks earlier than in 1941; this individual may have been an early migrant.

It is a curious fact that nearly all the birds observed were in immature plumage. Prior to the large influx in July particular attention was not given to the few birds resting on the rocks or fishing at sea. Later, when numbers were often resting on the rocks they were closely examined, and I was never able to discover among them a bird in adult winter plumage. Young birds of the year have a considerable amount of brownish black markings on the upper surface, especially on the shoulder of the wing. The forehead is white and the front part of

† North, A. J., *Austr. Mus. Cat.*, No. 12, 1890, p. 404; *ibid.*, *Austr. Mus. Spec. Cat.*, No. 1, Vol. iv., 1914, p. 321.



Silver Gulls and White-fronted Terns.

the crown finely flecked; the rest of the crown and nape is blackish, as in the adult winter phase, which differs otherwise in having the entire upper surface pale grey, without any markings.

The change into adult summer plumage is rather slow, and it was not until the end of October that fully adult birds were to be seen. The last signs of immaturity to disappear are the markings on the shoulder of the wing by which time the entire crown and nape is a rich glossy black. Not every bird is thus attired when they leave us, because all of ten seen on November 16, 1941, showed slight brownish markings on the wing coverts.

A White-fronted Tern was seen on The Reef on November 9 with the entire upper surface mottled. This coincides with the observation of a Crested Tern in somewhat similar plumage seen on October 12, and probably represents an aberration in moult. This species has the habit of fishing in broken water close to a rocky shore. Perhaps the small fish on which it lives are more easily obtained in the surge.

Little Tern. *Sternula albifrons*.

This small graceful Tern was seen on a few occasions only. Apparently there is a northward movement along the New South Wales coast towards the end of summer with a return movement in the spring.

The late summer records (? birds moving north) are:—

January 4, 1941.—One adult. January 3, 1942.—One adult. January 18, 1942.—Two birds—one adult and one in immature plumage. January 26, 1942.—Three birds—two adults and one in immature plumage. One of the adults was seen with a small fish in its bill flying towards the young bird.

The spring and summer records (? birds moving south) are:—

September 21, 1941.—One bird, not fully adult, crown mottled, bill black. Nape black, extending through the eye. October 12, 1941.—Three birds—one adult and two in plumage, approximating the birds seen on 21/9/1941. November 16, 1941.—One bird: similar plumage to bird seen on 21/9/1941.

The breeding season commences in October. Presumably, then, the birds not in adult plumage were born the previous year—that is, in November or December. In breeding plumage birds have the crown and nape black and the bill yellow with a black tip.

Silver Gull. *Bruchigavia novaehollandiae*.

Common from late summer to July. Sometimes several hundreds were to be seen resting on the rocks, particularly if the weather was boisterous. The number of birds noted varied a good deal. If a school of fish appeared offshore the Gulls and Terns would join the Muttonbirds in the feast. After July their numbers decreased, and to record twenty or thirty was unusual. No doubt many birds had gone south to the Five Islands off Port Kembla to breed. The influx commenced again in mid-December. Young birds of the season, recognised by their mottled plumage, were rare, which seems to indicate that most of them do not wander far from their nesting grounds for some time. The first young bird was recorded on December 14, 1941. Gulls with black bills, but otherwise like adults, which have red bills, were recorded throughout the year.

Pacific Gull. *Gabianus pacificus*.

One record only. A bird in immature plumage, entirely dark brown, was recorded on June 7, 1941. It was resting on the rocks. The Terns and Silver Gulls were much alarmed by the presence of this stranger in their midst.

Arctic or Parasitic Skua. *Stercorarius parasiticus*.

The Arctic Skua appears off the New South Wales coast during the summer months. It is a migrant from the Northern Hemisphere where it breeds. Four birds were seen passing over The Reef late in the afternoon of November 22, 1941, and two on December 27. These are the only occasions on which it was recorded.

Turnstone. *Arenaria interpres*.

The Turnstone is one of the most interesting of the Arctic migrants. The breeding range of the species is circumpolar, well within the Arctic circle, north of latitude 70°N. The actual breeding stations of the birds migrating to Australia have never been determined, but they probably include the extreme northern parts of Siberia, the New Siberian Island, and possibly Wrangel Island and Alaska.

The southward migration commences about the middle of July, and birds appear in the northern parts of Australia towards the end of August. The first birds seen on The Reef were noted on September 13, 1941; they were still in breeding plumage. The species was present until March 1, 1942, and was observed eighteen times in twenty-five visits during that period. Only a single bird was seen on the majority of occasions, but two were observed four times and three once (February 23, 1942). The distance the birds would have to travel on their northward migration from The Reef would be between 7,000 and 8,000 miles. Assuming that they left in early March and reached their breeding grounds they would have to accomplish this long journey in approximately seventy days, as nesting commences about the middle of June. The average daily distance covered would be about one-hundred miles.



Three of a kind—Black Oyster-catchers.

Actually, the matter is not so simple as this, because the birds may travel several hundred miles in a single stage and then rest and feed before moving on again. Moreover, it seems that many non-breeding birds, while joining the northward migration, do not go as far as the breeding grounds, but remain some distance to the south of them.

Soon after their arrival in Australia they moult into eclipse or winter (our summer) plumage. This generally takes place during October and November. The rich chestnut markings on the back are lost and become brown, and much of the black on various parts of the body is replaced by brown or dark grey. The pre-nuptial moult commences about the end of January, and by the time the birds leave us they appear to be assuming full breeding plumage. In flight they can always be distinguished from other waders by the conspicuous white markings on the back, tail and wings. The feet are bright reddish-orange and rather short, giving the bird a squat, plump appearance. The only call I heard the species give consisted of several sharp notes uttered very quickly—a kind of loud chattering.

Sooty Oyster-catcher. *Haematopus unicolor*.

The Sooty Oyster-catcher is a slow-moving bird with a peculiar gait when walking away from an intruder. The common name of "Red-bill" is very appropriate; the legs are also of a reddish colour but much duller than the long straight bill. The eye (iris) is scarlet. They were present on The Reef from March, 1941, to the middle of September. On five occasions only was the species listed as absent during this period. The number of birds seen varied from one to six,

with an average of four for each visit. No doubt they fed elsewhere along the coast, but Long Reef seemed a favoured place with them. On September 13, 1941, four birds were recorded; they were flying about The Reef chasing one another and uttering shrill piping notes. These flights were probably associated with courtship, as it was the beginning of the breeding season, and they had not acted like this during the preceding six months. Not a bird was seen again for five weeks, three being recorded on October 26, then two only until the end of February, 1942. These two may have been non-breeding birds. On March 1 and March 8, 1942, five were present, and on April 3 eight were listed. The nearest recorded breeding place of the species appears to be the Five Islands, off Port Kembla. The birds were seen to feed on Cunjevoi or "Sea-squirt" and dead fish left by fishermen on The Reef or the sand-spit. Mostly they pattered about looking for small crustaceans and other marine life.

Lesser Golden Plover. *Pluvialis dominicus*.

The number of Golden Plovers on The Reef remains fairly constant during late spring and summer. Generally about fifty or sixty birds are to be seen at this time of the year. The northern migration commences in March, and few birds are to be observed after mid-April. The latest date recorded, apart from a single bird noticed throughout the winter, was April 19, 1941 (four birds). In 1942 none was seen after April 7, when several were noted on that date by a colleague, H. D. Williamson. The birds return again towards the end of August or early September. September 13 is the earliest date I have for The Reef.

Many of the Golden Plovers seemed to use The Reef as a feeding and resting place during periods of migration; at these times the numbers seen vary a good deal. On arrival from their nesting grounds in northern Siberia many of the birds still retain much of their breeding plumage. Others show no signs of the "summer" plumage. These latter may be young of the year or adult that have not nested. All are in eclipse by November. Odd birds commence to don the breeding plumage again about mid-January, but fully plumaged birds are seldom seen until early March. Even in April numbers still show little or no signs of change.

In breeding plumage the Golden Plover is a handsome bird. Most of the under-surface is a rich black; a white stripe, commencing from the forehead, extends above the eye and down the side of the neck; the mottled upper-surface is flecked with gold. Some birds, probably females or young males, are not so brightly coloured and the under-surface is spotted with white.

The single bird mentioned above was seen twelve times in eighteen visits between May 11 and September 7, 1941. Presumably, it was the same bird that frequented The Reef, as its plumage, mottled black and white below with an indistinct eye and neck stripe, remained much the same during this time.

In habits Golden Plovers resemble the Dotterels. They are rather slow-moving when feeding and are given to standing still as though lost in contemplation. A frequent bobbing motion of the head gives one the impression that they are suffering from hiccoughs; this habit is common among Dotterels. The usual call is a sharp two or three syllable whistle, the last note being longer, with a rising inflection.

Double-banded Dotterel. *Nesoceryx bicinctus*.

The Double-banded Dotterel is considered to be an annual migrant from New Zealand, principally to the south-eastern portion of Australia, and Tasmania. Generally speaking, they are with us from early March until early September, though stragglers may be recorded at other times of the year. The first bird seen on The Reef in 1941 was observed on March 2. Their numbers increased towards the end of that month, and from fourteen to twenty were present until mid-August, when they commenced to depart; all had gone by the second week in September. In 1942 a single bird was seen on February 7, but none was listed again until March 1, when three were noted. On April 19 some fifteen were noted.

When the birds arrive they show no signs of the prominent double band across the lower throat (black) and the breast (chestnut), except, perhaps, an indistinct greyish wash in place of these bands. In all probability both adults and young of the year are represented. The majority have a buffy wash in the feathers of the face and neck, and these are most likely immature specimens.

A few birds commence to change back into full plumage about the end of April; the upper band then shows blackish and reddish-brown flecks are noticeable in the position of the lower band. Most of the birds are fully plumaged by mid-August, just prior to their departure for New Zealand, where they breed.

Only a small proportion, so far as is known, of the Double-banded Dotterels migrate each year from New Zealand. The species has also been recorded from the Kermadec Islands, Lord Howe Island, Norfolk Island, and the New Hebrides (one record).

Red-capped Dotterel. *Leucopoliis ruficapillus*.

Many years ago a few Red-capped Dotterels used to nest on a small area of shell-strewn sand where the headland joins the Spit. Human interference and rats have since driven them to other nesting places. They were present on The Reef throughout the year except on one occasion (November 23, 1941), but were rare from late September to early January. This is the usual breeding season of the species, and no doubt the birds were then dispersed along the coastal beaches and sand dunes. Towards the end of January their numbers increased, and in the autumn and winter months it was not unusual to record fifty birds. Elsewhere in the Sydney district, particularly at Botany Bay, where the feeding grounds are more extensive, these winter congregations may number hundreds of birds. The rich chestnut on the sides of the neck and head of the male bird is very pronounced in March and April and is probably the result of new plumage acquired by moult.

Sea Curlew. *Numenius cyanopus*.

Recorded on five occasions only: August 17, 1941, six birds; August 24, two birds; August 30, two birds; December 27, one bird; January 26, 1942, three birds. All were seen between the hours of 10 a.m. and 3 p.m., and all were flying south above The Reef. Presumably the August birds were migrants moving to more southern parts of eastern Australia. The December and January birds may have been seeking new feeding grounds. The species is not common near Sydney, but is plentiful both north and south of the metropolis. I have seen over a thousand birds feeding on the mud-flats near Stockton, Hunter River (January 11, 1941), and birds are common on Tom Thumb lagoon, near Port Kembla. They are fond of feeding over soft mud-flats, probing with their long curved bills for crabs. The rocky nature of The Reef is quite unsuited to their habits.

Grey-tailed Tattler. *Heteractitis brevipes*.

The Grey-tailed Tattler, or Grey-rumped Sandpiper, was observed on The Reef throughout the year. It was not seen on five occasions only in fifty-two visits between March, 1941, and February, 1942. Four birds were noticed on five occasions; three birds fourteen times; two bird twenty times, and one bird on eight trips. To some extent the numbers recorded ran in series; that is, four might be present for a few weeks, then two for a month or so, and so on. Generally they kept together, both when feeding and resting.

This species is another of the Arctic migrants whose eggs have not yet been collected. However, young birds have been found, with down on the head and neck and with half-grown wings, late in July. On this evidence the Grey-tailed Tattler is known to breed in the alpine tundra zone of the mountains of the Verkhoyansk Ranges, between the basins of the Aldan and Indigirka Rivers, north-eastern Siberia.

The birds that remained on The Reef throughout the winter months of 1941 did not assume breeding plumage. On April 19, 1941, two birds were recorded in breeding plumage; none was seen the following week, but on May 5 two were noted; these latter birds were

in eclipse plumage, so they could not have been the same individuals noted two weeks previously,

An indication that the birds are assuming breeding plumage appears in early March. The white eye-stripe becomes more pronounced and fine streaks show on the sides of the face and the neck; by mid-April the change appears to be complete. The birds are then finely barred on the throat, upper breast and sides of the body. In eclipse plumage they are dark grey above and whitish below. At all seasons the legs are yellow. The long straight bill is dark, with the basal portion of the lower mandible yellowish. The white eye-stripe gives the birds an alert appearance. They are very active when searching for food and often feed in shallow water, particularly where the surge washes over the rocks. The usual call is a loud, sharp, double whistle closely resembling that of the Golden Plover, but of a higher pitch. This call seems to express something of the wild loneliness of their northern haunts.

The Grey-tailed Tattler is one of the most graceful of the waders and is a very fast bird on the wing.

Sanderling. *Crocethia alba*.

The Sanderling is a very rare bird anywhere near Sydney. Mr. Iredale and I thought we saw this species on The Reef on October 18, 1941. Later, February 7, 1942, I had a single bird, in eclipse plumage,



Three Little Stints and a Red-capped Dotterel (second bird from right).

under close observation for some time. This bird was running about the sand on the extreme northern end of Deewhy Beach, adjacent to The Reef, and seemed loth to fly. Several times I walked to within twenty feet of the bird before it took wing. This species, like the Turnstone, nests well within the Arctic Circle. The known breeding grounds in Siberia are on the Taimyr Peninsula, the New Siberian Islands, and probably Laikof Island.

Little Stint, Red-necked Stint, Rufous-necked Sandpiper. *Pisobia ruficollis*.

This bird, the smallest of our waders, might easily be confused with a female Red-capped Dotterel, especially as both species often feed together on The Reef. However, apart from certain plumage differences, their feeding habits are quite distinct. The Little Stint

always seems to be in a hurry, has a quick jabbing motion of the bill, and will often feed in shallow water, whereas the Red-capped Dotterel is a sedate, slow-moving bird when feeding and seldom enters the water. Their presence on The Reef was somewhat irregular; the greatest number seen at any one time was eight—October 20, 1941.

They were not seen during the winter months. The first bird to appear in the spring was noted on August 30, 1941. This recently arrived migrant had a pronounced reddish wash in the feathers on its breast and neck. The latest records were April 19, 1941 (one bird), and April 19, 1942 (one bird). This species is more inclined to frequent mud-flats and marshes than the sea coast. In localities near Sydney more suited to their habits than Long Reef they occur in hundreds. Many birds remain with us throughout the winter, though I never saw any of these laggards on The Reef.

The Little Stints migrating to Australia breed in the Arctic regions of the eastern Palearctic Region, though eggs do not appear to have yet been taken in this area. However, they have been collected recently in north-western Alaska, where the species is known as the Rufous-necked Sandpiper.

Sharp-tailed Sandpiper, Sharp-tailed Stint, Siberian Pectoral Sandpiper. *Limnocinclus acuminatus*.

The Sharp-tailed Sandpiper is perhaps the commonest wader frequenting the Sydney district. On The Reef they were present in numbers up to about one-hundred birds from October till January. After February their numbers decreased, and most of them had gone by April. The last bird seen was recorded on April 4, 1941. In 1942 none was definitely seen after March 8 (five birds), though two or three appeared to be flying with a flock of Golden Plovers disturbed from the outer rocks on April 3. The species was absent from The Reef throughout May, June, July and August. The returning migrants appeared during the first week in September (eight birds, September 9, 1941). These birds were either young of the year or adults still in partial breeding plumage, or both—the two phases are difficult to separate in the field. In this plumage state a considerable amount of rufous colouring is apparent in the head and back feathers; the throat and upper-breast are washed with rufous and flecked with darker markings which extend along the sides of the whitish abdomen. Within a few weeks many birds are seen in a grey plumage state, mottled above and whitish below, and towards the end of the year most of them are thus attired. The plumage variations in this species are very puzzling and not very well known. There is also apparent a difference in size, some birds being noticeably larger than others. The change back into breeding plumage is gradual; early signs are to be seen about the end of January and by March the majority of birds are brightly coloured, though not necessarily in full breeding dress. At Botany Bay I saw three birds in full plumage on May 2, 1942, which is late for the birds to remain here. They are very active when feeding. The usual call note is a soft twitter.

The Sharp-tailed Sandpiper is one of several Arctic migrants, the nests and eggs of which have not yet been described. A young bird, with patches of down on the crown, was obtained near the Kolyma River Delta, Northern Siberia, on August 26. Judging by the large number of birds that visit Australia each year the breeding grounds of the species must be extensive.

Spoonbill. ? species.

Two Spoonbills were seen flying above The Reef, in the direction of Narrabeen Lakes, at mid-day on April 3, 1942. They appeared to have black bills in which case the Royal Spoonbill is indicated. Both the Royal Spoonbill and the Yellow-billed Spoonbill are rare birds near Sydney.

White-faced Heron. *Notophox novaehollandiae*.

A single bird was seen on The Reef on May 4, 1941, and a colleague, H. D. Williamson, recorded a bird on April 6, 1942. The species is fairly common in nearby localities, but prefers lagoons and marshes to the rocky coastline.



Crested Terns and White-fronted Terns in flight.

Reef Heron. *Demigretta sacra*.

The Reef Heron, more than any other species, seems to typify the spirit of The Reef. A lonely, morose-looking bird, it would wait patiently for the fall of the tide to uncover its feeding grounds. With hunched body and dark slaty plumage it merged into its surroundings and became part of the boulder-strewn reef. Generally a single bird only was seen; two birds were recorded on four occasions, and three birds once. It was not always present on The Reef, being recorded thirty-four times in fifty-two visits throughout the year. The birds are fond of feeding where the waves wash over the outer edges of The Reef, or else among the many rock pools, searching for crabs and small fish. The colour of their legs varies from orange-yellow to yellowish-green; the iris is yellow, giving the bird a malevolent look.

Black Swan. *Chenopsis atrata*.

Swans when moving from one feeding ground to another sometimes fly along the coast or out to sea a little. Five birds were seen over The Reef travelling south on August 17, 1941, and seven were noticed offshore, going north, on November 16, 1941.*

Teal frequent our coastal lagoons at various times of the year and, while they seem to feed and travel mostly at night, they will, if disturbed, shift quarters during the day. A compact flock of some fifty birds was seen flying south several hundred yards off The Reef on October 5, 1941. Specific identification was not certain at this distance, though they appeared to be Grey Teal.



Little Pied Cormorants on the alert.

Big Black Cormorant. *Phalacrocorax carbo*.

A few birds, never more than three, were to be seen on The Reef from early March, 1941, to the end of April, 1941. None was seen again until October, a lapse of six months, when either one or two were present until early November. On the 9th of that month twelve were recorded. Subsequently their numbers varied each week from ten to twenty-three until observations ceased on May 3, 1942. The species was common elsewhere in the Sydney district during this period. On February 1, 1942, when fifteen birds were resting on the outer rocks, a flight of about twenty-five Big Black Cormorants passed about three hundred yards offshore—they were going north. The birds that used The Reef as a resting place fed in the surrounding waters. When settling on the water they used both their webbed feet and their tails as efficient brakes. The tail feathers are strong and extremely stiff, as with most Cormorants. None of the birds had white feathers about the face or flanks, which markings are indicative of the breeding

* The nearby Deewhy lagoon is a favourite feeding place for Black Swans. I have seen several hundreds there at one time.—Ed.
Teal. ? species.

plumage. Several had the under-surface dull white, flecked with dark brown, this being the immature phase. They were often seen resting on their bellies, a most un-Cormorant-like attitude. Their large size can best be appreciated when they are seen close to the Little Pied Cormorant.

Little Black Cormorant. **Mesocarbo sulcirostris.**

Recorded on one occasion only. A single bird was seen on October 5, 1941.

Little Pied Cormorant. **Microcarbo melanoleucus.**

Present throughout the year. The greatest number seen at any one time was eight (February 7, 1942). They sometimes fed in the pools on the rock flats as the tide was falling, but more frequently in fairly shallow water offshore, apparently hunting for fish amongst the kelp and seaweed. A bird fishing near the outer rocks remained under water from eighteen to twenty-three seconds, the average time for ten dives being twenty seconds.

Australian Gannet. **Sulita serrator.**

The Gannet breeds on islands in Bass Strait and Tasmania, and many birds move north along the New South Wales coast during February and March. The earliest birds seen off Long Reef were noted on February 16, 1941. They were present, in small numbers only, throughout the autumn and winter months. Most of them seem to have gone south again by October. Odd birds occur much later than this. For instance, one was recorded on November 22, 1941; five weeks later, December 27, six birds in adult plumage, passed The Reef late in the afternoon going south. None was seen again until March 22, 1942, when several immature birds were offshore. Immature birds can be recognised by their much speckled plumage.

The following land birds were noted in the vicinity of The Reef:—

Swamp Hawk. **Circus juxta.** One on April 3, 1942.

Sea Eagle. **Cuncuma leucogaster.**

This noble bird nests in the more secluded gullies behind Narrabeen and at Middle Harbour, and other parts of the coast. Single birds were occasionally seen over The Reef searching for fish.

Nankeen Kestrel. **Cerchneis cenebroides.** Noted on three occasions during March, 1941; again in November, then odd birds up to the end of March, 1942. On October 15, 1932, a Kestrel was seen to swoop down and pick up a young Red-capped Dotterel, which had "frozen" amongst the stones near the sand-spit, and make off with the unfortunate bird in its talons. The adult Dotterels became very excited, and chased the Kestrel high in the air.

Kookaburra. **Dacelo gigas.** One noted, October 12, 1941.

Welcome Swallow. **Hirundo neoxena.** Seen hawking for flies above masses of kelp on The Reef from late summer to the end of winter.

Wagtail. **Leucocirca volitans.** Seen several times from early March to late August feeding on insects over the sandy beaches. On three occasions two birds were seen feeding well out on the exposed rock flats.

White-fronted Chat. **Ephthianura albifrons.** Five birds seen feeding on the northern beach on July 14, 1941.

Magpie Lark. **Grallina cyanoleuca.** Five birds seen feeding on the ocean beach south of The Reef on May 18, 1941.

Ground Lark. **Anthus australis.** Always present on the seaward slopes.

Raven. **Corvus coronoides.** Two seen on the rock flats, probing the seaweed, apparently for crabs, on March 3, 1940.

To know The Reef in all its moods; in sunshine and shadow, the stormy days of winter or the hot, lazy days of summer, and the rare times when the sea is quiet, is to understand its spell—a spell so well expressed by Byron:—

“There is a rapture on the lonely shore,
There is society, where none intrudes,
By the deep sea, and music in its roar.”



Black-browed
Albatross.

All the photographs re-produced, except that of the Black-browed Albatross, were taken at Long Reef.

A USEFUL BIRD.

In June of this year the black wattle trees (*Acacia decurrens*) in this district—Menangle Park—became heavily infested with the larvae of the painted acacia moth (*Orgyia anartoides*). Numbers of Olive-backed Orioles (*Oriolus sagittatus*) appeared in the open areas and commenced feeding on the caterpillars. I have not previously seen these birds in the open country hereabouts, and only rarely in the more thickly forested Picton-Maldon locality nearby. The caterpillars, which seemed likely to strip the trees of their leaves, were brought under control by the Orioles.—O. E. EDWARDS, Menangle Park, N.S.W.

REVIEWS.

Australian Insects. An Introductory Handbook, by Keith C. McKeown, F.R.Z.S. Royal Zoological Society of New South Wales, 1942.

Price, 7/6.

This book of insects as regards Australia fulfils a long-standing want to the general nature-lover. Whatever his specialty may be, the student cannot help but notice the many and very varied forms of insect life that abound in this country. With a desire to recognise these he has been confronted by the lack of any reference work easy of usage. Now this work is before him. It begins with an illustrated key to the Orders, so that he can select the figure nearest and then he can refer to the text. This method is novel and will be greatly appreciated by every reader. Then come the Orders in systematic

sequence, and under each illustrations of typical forms are given, including immature and larvae, often the most puzzling creatures in the field. A resume of the life-history of members of each Order appears with notes when such is incompletely known, inciting the student to furnish such information for a future edition. It is easily written so that everyone can understand everything written, and the numerous illustrations are exceedingly valuable, in that they assist more than the written word. No previous book has been so comprehensively illustrated, some four-hundred illustrations being included in the three-hundred page book. While many accounts are referable to other workers, there is a great deal of original observation and research throughout the book. It will be one of the most useful books to every nature student and everyone should possess one. It is priced so that the most modest buyer can obtain a copy, and the Society may be well proud of the publication.

It should be here explained that the Society is issuing these Hand-books at cost price for the furthering of knowledge, and especial praise must be allotted to Mr. McKeown for the labour that he has put into this book. It must be emphasised that this has been entirely a labour of love and that love has engaged about two years' hard labour, but the result will long remain as a monument of industry and a very present aid to the difficult problems of naming our insects.—T.I.

Strange New World.—By Alec. H. Chisholm, F.R.Z.S.

Angus & Robertson, Sydney. 1941. Price, 12/6.

The chance discovery of a diary kept nearly a century ago by John Gilbert, ornithologist and collector for John Gould, resulted in the compilation of a remarkable work, throwing an unexpected light on the characters of two men—Ludwig Leichhardt, the lost explorer, and John Gilbert himself.

Previously the memory of Leichhardt was surrounded by legends of intrepid adventure, and his ultimate fate was shrouded in the impenetrable mystery of the Australian desert. Of Gilbert little was known as to his personality, although his employer, John Gould, was meticulous in giving him full credit for all his discoveries in the bird world.

Now Chisholm, himself a leading exponent of the charm of Australian birds, armed with an incontrovertible personal record, is able to present Gilbert from another angle as the man, apart from his reputation as an ornithologist. From the pages of this journal he appears as a man of almost untiring energy, who often fretted under the autocratic control of a leader whose faults and errors he clearly perceived, but without permitting himself to openly overstep the bounds of loyalty and respect.

With this journal in one hand and the published records of Leichhardt's adventures from his own accounts and those of some of his companions, Chisholm has reconstructed the character of Leichhardt to such an extent as to reveal him as quite a different personality from that hitherto accepted. Perhaps in his admiration for Gilbert and his resentment at the mistakes made by the leader which undoubtedly contributed to the tragic death of Gilbert, Chisholm has given greater rein to his vein of sardonic humour in drawing a word picture of the irresponsible and vacillating nature of Leichhardt. Much of this is contained in comment form, after presenting the accounts of certain occurrences from the respective journals of leader and man.

Notwithstanding this—shall I say defect—the book is a notable example of co-ordination of two separate accounts of one of the most remarkable adventures in exploration of Australia, by one whose journalistic training, combined with his zoological knowledge, has definitely fitted him to compile this valuable contribution to Australian literature.

As the work under review deals only incidentally with Gilbert's researches in ornithology, and there must be much in the diary not fully utilised by Gould in his publications, we may perhaps look in the future for another volume dealing with zoological details of Gilbert's expeditions.—A.F.B.H.

LIST OF MEMBERS.

As on September 25th, 1942.

Note.—Unless otherwise specified, members are residents of the State of New South Wales.

Members will oblige by notifying the Honorary Secretary of any change of address.

PATRONS.

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Air Vice-Marshal Sir Philip Woolcott Game, G.B.E., K.C.B., D.S.O., Langham House, Ham Common, Surrey, England.

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Dakin, Professor William John, The University, Sydney.

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McKeown, Keith Collingwood, Australian Museum, Sydney.

Mathews, Gregory Macalister, C.B.E., Parliamentary Library, Canberra, A.C.T. (or 100 Coonbarra Road, Wahroonga).

Musgrave, Anthony, Australian Museum, Sydney.

Roughley, Theodore, Cleveland, B.Sc., Fisheries Department, Chief Secretary's Department, Sydney.

Troughton, Ellis Le Geyt, Australian Museum, Sydney.

Turner, Dr. A. Jeffries, Wickham Terrace, Brisbane, Queensland.

Ward, Melbourne, 20 Wylde Street, Potts Point.

Waterhouse, Gustavus Athol, D.Sc., 39 Stanhope Road, Killara.

Whitley, Gilbert Percy, Australian Museum, Sydney.

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Dunbabin, Thomas, 22 Raglan Street, Mosman.

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Lyell, George, Gisborne, Victoria.

Sherborn, Dr. Charles Davis, British Museum (Natural History), London.

Stiffe, R. J., 350 George Street, Sydney.

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Coles, Clifford, Millions Club, Rowe Street, Sydney.

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Dangar, R. H., "Turee", Coolah.

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Dixon, Sir William, "Merridong", 586 Pacific Highway, Killara.

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Royal Zoological Society of New South Wales

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